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NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C.

EASA B787 Debrief Note

(16 Pages)



FINAL

Ref: P-EASA.IM.A.115

Date 22nd May 2011

EASA DEBRIEF NOTE

ON

BOEING 787-8 RR EASA VALIDATION FAMILIARISATION FLIGHT TEST VISIT.

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Distribution:

External: Boeing

[REDACTED]

FAA

[REDACTED]

Internal

Head of Experts Department
Head of Products Department
Product Certification Manager
Project Certification Manager
Flight Standards

[REDACTED]

Experts
FTE DGA/EV –Istres

[REDACTED]

The categorisation of items and conclusions presented are those of the team members, based on flight test results and the information presented by the applicant. The flight team reserves the right to change the conclusions as a consequence of information and data from the applicant, EASA specialists, or any change in the certification basis.

1. Introduction

The EASA validation familiarisation flight test program took place at the Boeing Company in Seattle over the period May 7th to 22nd 2011 and was undertaken by the EASA team of [REDACTED]. The schedule consisted of data review, CAB 1 simulator sessions to look at certain functional failure cases and effects together with a practice workup in preparation for the flying. A total of six flights were conducted exploring flight characteristics, autoflight and systems together with certain failure cases which amounted to a total airborne time of 25 hrs 39 mins (includes ferry times to Moses Lake). The intent of this debrief note is to capture the salient items arising from our discussions to facilitate a path towards EASA certification relating to the flight discipline.

2. Classification of Items

UNACCEPTABLE ITEM	:	an item which fails to comply with the required standard and is therefore unacceptable.
RESERVATION REQUIRING AN EASA POLICY RULING	:	an item where compliance with the required standard is not clearly proven and resolution will require an EASA policy ruling.
RESERVATION REQUIRING ADDITIONAL SUBSTANTIATION		an item where compliance with the required standard is not clearly proven and resolution will require additional substantiation from the applicant
MAJOR RECOMMENDATION FOR IMPROVEMENT	:	an item which meets the required standard but where considerable improvement is recommended.
RECOMMENDATION FOR IMPROVEMENT	:	an item which meets the required standard but where improvement is recommended.
UNSERVICEABILITY	:	a device which is temporarily inoperative or performing below its nominal level.
COMMENT	:	self explanatory.
ACTION ITEM	:	self explanatory.

[REDACTED]

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(ii) MAJOR RECOMMENDATIONS FOR IMPROVEMENT:

[REDACTED]

[REDACTED]

3. Autothrottle Wake-Up, speed protection feature: The “authrottle wake up” feature has been considered by the certification team as a system improving significantly the safety of the aircraft to be certified. It protects the aircraft not only against stall but also against low energy states, anticipating on the stick shaker triggering. Unfortunately there are on the B787 (as well as some other previous Boeing models) at least two automation modes (FLCH in descent and VNAV speed in descent, with ATHR on HOLD) for which the “Authrottle Wake up” function is not operative and therefore does not protect the aircraft. Although the certification team accepts that this “Authrottle wake up” feature is not required per certification requirements, these two exceptions look from a pilot’s perspective as an inconsistency in the automation behaviour of the airplane. Inconsistency in automation behaviour has been in the past a strong contributor to aviation accidents. The manufacturer would enhance the safety of the product by avoiding exceptions in the “Autothrottle wake up” mode condition.

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7. Conclusions

There is no doubt that the Boeing 787-8 RR exhibits commendable handling qualities which have used those of the B777 as a foundation standard. This evaluation has raised numerous recommendations for improvement proposed for consideration with several action items but there are no significant issues which preclude support for EASA certification in the flight discipline. Boeing is recognised for providing strong support for the EASA flight panel visit and along with the FAA has facilitated an efficient flight evaluation.

[REDACTED]
Test Pilot

[REDACTED]
Flight Test Engineer

[REDACTED]
Flight Test Engineer

Action Items raised during
the visit







